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ticed for over twenty years. A storage reservoir and canals under construction by the Government will reclaim 282,000 acres more. The study of the stratigraphy of the region shows that all the younger systems are represented down as far as the Devonian, and below that the Ordovician, Cambrian, and pre-Cambrian occur. The Laramie has a much greater development than any other co-ordinate division, although the Colorado, the Pierre shale, and the Wasatch also show considerable thicknesses. Coal has a widespread distribution in the Laramie and associated formations and is mined at numerous points along the streams. Gypsum deposits are extensively developed, but are not utilized except in a small way.

H. H.

Geology of the Long Lake Quadrangle. By H. P. CUSHING. New York State Museum, Bulletin 115; 88 pp., 20 pl., map. Albany, 1907.

The Long Lake quadrangle is situated on the western border of the more rugged portion of the Adirondack Mountains. The topography of the area is greatly diversified, for portions of both the high Adirondack region and the lower "lake belt" are included. Fifty-seven lakes and ponds, many being rapidly converted into marshes, are shown. All the rocks of the quadrangle are of pre-Cambrian age and most of them belong to the early portion of that long interval. Four groups have been differentiated, most of them strongly metamorphosed: (1) A series of sedimentary rocks, the Grenville series, with contemporaneous intrusions; (2) a series of gneisses of igneous origin, perhaps older than the Grenville; (3) a series of igneous rocks less profoundly altered and certainly younger than the preceding; (4) a series of still younger igneous rocks of very slightly altered character. Probably Ordovician deposits were laid down on the older rocks but, if so, have been entirely removed by erosion. A full account of the geological history of the northern Adirondack region is given by the same author in New York State Museum Bulletin No. 95.

H. H.

Mineral Solution and Fusion under High Temperatures and Pressures. By ARTHUR L. DAY. From the *Fifth Year-book* of the Carnegie Institution of Washington, pp. 177–85. Washington, 1907.

This paper is a summary of the work accomplished in geophysical research by the Carnegie Institution of Washington in 1906. The work has now passed beyond the preliminary stage. Important results have already been obtained and much more may be expected in the future, especially since the occupation of new quarters by the laboratory will make possible the investigations of mineral behavior under high pressures originally contemplated. The study of the feldspars and other minerals resulted in the location of several cases of reversible changes and one of irreversible change. Wollastonite possesses one crystal form below 1,200° and another above that temperature and either of these forms may be changed to the other. Three forms of magnesium metasilicate may be changed into a fourth by heating, but the reverse change does not occur; and yet enstatite, the magnesium silicate compound common in rocks, is not this stable form. Quartz was found to change over to tridymite at 800°, if given time enough; showing that this mineral, so common in nature, has been formed at a relatively low temperature. "Quartz-glass," a most useful material which can be raised to a white heat without melting and subjected to sudden changes of temperature without breaking, was successfully prepared, though quite high temperatures (above 1,600° C.) and some pressure were necessary. The valuable properties of Portland cement have been attributed to tricalcic silicate, but this compound was found not to exist; further study may reveal the true chemical relations which determine the action of this cement. Textures similar to those of certain schistose metamorphic rocks were produced in the laboratory by submitting crystallizing substances to unequal stresses; thus confirming the conclusions of Van Hise in regard to the cause of schistosity in rocks. The published work of the laboratory has appeared in various scientific journals, as enumerated in the paper.

H. H.

The Mountains of Southernmost Africa. By W. M. Davis. Reprinted from Bulletin of the American Geographical Society, Vol. XXXVIII, October, 1906.

One of the best-defined physiographic features of South Africa is the mountain system, occupying the southern border and here referred to as the Cape Colony ranges. It comprises a number of nearly parallel east and west ridges and longitudinal valleys which do not conform in direction to the trend of the southern sea coast but are cut irregularly by it. The sea has advanced on these mountains, leaving but a remnant of the whole system, and this remnant has itself suffered extensive denudation. Americans will be particularly interested to learn that the Cape Colony ranges are in many respects similar to the Alleghenies. The strata, with the exception